Communicable Disease BULLETIN
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Bioterrorism Surveillance Activities In New Hampshire

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Prior to the recent appearance of anthrax cases in the United States, the likelihood of a bioterrorism attack seemed to be remote.

However, recent acts of terrorism and the concurrent appearance of anthrax cases in several east coast cities has prompted many state agencies, health care facilities and even privately owned businesses to review, update or create bioterrorism response plans.

Bioterrorism is different from other kinds of terrorism. In chemical or explosives attacks causalities are seen immediately. In a bioterrorism attack, on the other hand, the incubation period needed for a disease agent to produce an effect is longer, sometimes days or even weeks.

Smallpox virus, for instance, has an incubation period of 7 to 19 days with an average of 10 to 14 days to onset of illness.

The length of the incubation period coupled with the fact that most diseases thought to be used in a bioterrorism attack are not frequently seen by physicians in this country makes differentiating a diagnosis of a bioterrorism-related disease especially difficult.

Initial signs and symptoms of many diseases that could be used in a bioterrorism attack resemble common ailments and are difficult to diagnose without laboratory testing. If not recognized promptly, appropriate treatment of victims and prophylactic treatment of other exposed persons could be delayed.

Surveillance: A Key Component To A Public Health Response

State and local departments of public health have been particularly instrumental in shaping a state or community's response to a bioterrorism threat. The NH Department of Health and Human Services is among one of many agencies that would act in this type of situation and in doing so has a special place in the planning process.

In New Hampshire, the Bureaus of Communicable Disease Surveillance and Control are responsible for detecting, investigating and providing disease control and prevention measures following a bioterrorism incident.

Syndromic Surveillance Project

In response to the events of September 11, 2001 the Bureau of Communicable Disease Surveillance (BCDS) contacted all acute care hospitals in the state and implemented an emergency department syndromic surveillance system. The emergency departments (ED) were asked to provide daily data for the total number of patients seen in the ED, total number of fevers equal to or greater than 100.0 F, and the total number of respiratory problems. This syndromic surveillance system was designed to detect the early phase of a disease outbreak that might have occurred as a result of mass exposure to the primary agents known to be related to bioterrorism. According to the Centers for Disease Control and Prevention (CDC) the following diseases are recognized as potential organisms that would be used in a bioterrorism attack:

Group A Category Diseases

Anthrax
Small Pox
Plague
Botulism
Tularemia
Viral Hemorrhagic Fevers

Following the implementation of the first syndromic surveillance system, BCDS staff reviewed other state's emergency department syndromic surveillance projects, as well as the CDC's emergency department syndromic surveillance plans for major events and proposed modifications to the original system. Conference calls to all participating hospitals were also held to provide a forum for hospital input into the changes.

On October 19, a revised long term ED surveillance system was implemented with 13 sentinel hospitals chosen for the number of patients seen in their emergency departments or by their geographical location in the state. Three other hospitals in the state also volunteered to participate.

This sample covers 59% of the state's total emergency department visits. Under the revised system, the definition of fever was changed to

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100.4 F or greater and two other categories were added – gastrointestinal illnesses and rashes. This data is maintained in a database within the BCDS and reviewed daily.

All higher-than-average numbers are investigated by the Bioterrorism Surveillance Coordinator.

Animal Surveillance Project

The BCDS has an ongoing surveillance system with the State of New Hampshire Veterinarian, Dr. Clifford McGinnis.

This project has been in place since May 2001 and consists of a weekly review of all New Hampshire livestock deaths that have confirmed diagnoses found on the National Animal Reportable Disease list.

The diseases on this list are similar to those on the Nationally Notifiable Infectious Diseases list for humans, including some diseases that are considered likely bioterrorism agents.

Since May 2001, there have been no positive reports for any animal diseases associated with bioterrorism agents in New Hampshire.

Russia's Anthrax Incident

The importance of the State Veterinarian Bioterrorism Surveillance Project can be illustrated by the investigation into the 1979 anthrax outbreak in the Soviet Union. A military facility in Sverdlovsk that was secretly working with anthrax to use as a biological weapon had an accidental release. Within a few days people downwind of the facility began to get sick and die.

Overall, 68 people were reported to have died. The military denied any involvement in the incident stating that the outbreak was likely due to the gastrointestinal form of anthrax from meat that had been brought into the country illegally.

In 1992, then-President Boris Yeltsin allowed a team of American scientists to enter Russia to further investigate these deaths. The team interviewed victim's relatives, medical staff at the hospitals during the outbreak, and pathologists who performed autopsies on the victims.

They also reviewed medical charts, autopsy slides, and obtained weather information at the time of the release.

Based on the new evidence, the team was able to conclude that the deaths were caused by inhalational anthrax that was released from the facility and dispersed through the air in a plume downwind of the facility.

Anthrax tends to have a more rapid course in sheep and cattle as compared to humans, with a lag time of incubation to onset of disease to death being only a day or two. It was discovered that a preponderance of livestock in Sverdlovsk were dying just before any human illness became apparent.

Although the importance of the animal deaths in Russia was not realized at the time, the significance of livestock surveillance in determining an exposure to humans has been used as an ideal surveillance model since this incident.

Vital Records Mortality Surveillance

New Hampshire is the only state in the nation with Vital Records Vision 2000 (VRV2000), a computerized system where electronic death certificates are filed at the state within 24-hours of being signed. Unlike other states, where death certificates may not be received for up to a month, VRV2000 allows for the review of death certificates on a daily basis.

Currently, the BCDS has an ongoing project that consists of a daily review of all New Hampshire deaths for those agents listed on the bioterrorism Category A list as well as to syndromes that may be suggestive of infection with a bioterrorism agent; such as pneumonia, fever, sepsis and Adult Respiratory Distress Syndrome.

The Bioterrorism Surveillance Coordinator reviews New Hampshire's VRV2000 database each day and investigates anything that appears to be suspicious or unusual.

Bioterrorism In New Hampshire

To date, the bioterrorism surveillance projects within the BCDS have given no indication that any bioterrorism activity is occurring in the state.

Since the recognition of anthrax in the United States in October 2001, the Bureaus of Disease Surveillance and Control have received over 650 calls from concerned citizens, health care providers, law enforcement officials and private business owners.

The majority of the calls have been to gather information on the State's plans and protocols, to receive bioterrorism fact sheets, and to ask general questions about risk and exposure to anthrax.

However, there has been a significant amount of concern about powder exposure and worry about being exposed to powder making up 45% of all calls received. (Table 1)

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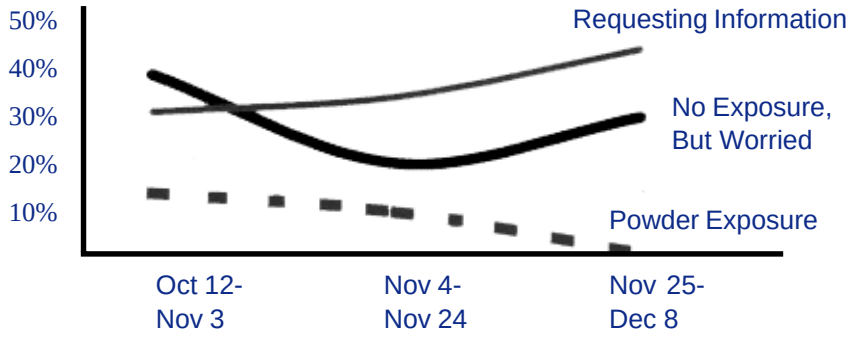
Table 1
Percent of Calls Received During A Specified Period



Bioterrorism (continued)

In fact, the State's Public Health Laboratories has received over 300 environmental and 17 human specimens to date. (Table 2) Not surprisingly, the number of submissions has proportionally corresponded with the detection of anthrax cases in other US cities during the same time period. All of the New Hampshire submissions have been negative for anthrax.

It must be emphasized that these projects are tools used to help quickly identify an outbreak or suspicious occurrence but that individual cases may not be identified by these methods.

For that reason, heightened awareness and surveillance cooperation by all New Hampshire health care providers is absolutely essential to the success of this initiative.

It is very important that private providers be alert to the occurrence of clusters of disease in their area and that if unusual or excess cases of illness are seen that they are immediately reported to the Office of Community and Public Health.

The 24-hour, toll-free number in New Hampshire is 888-836-4971. To reach communicable disease staff during business hours (8:00 AM to 4:30 PM, Monday – Friday) call 603-271-4496 or 800-852-3345 x 4496.

As stated in the April 21, 2000 issue of the Center for Disease Control and Prevention's Mortality and Morbidity Weekly Report:

"The public health infrastructure must be prepared to prevent illness and injury that would result from biological and chemical terrorism, especially a covert terrorist attack.

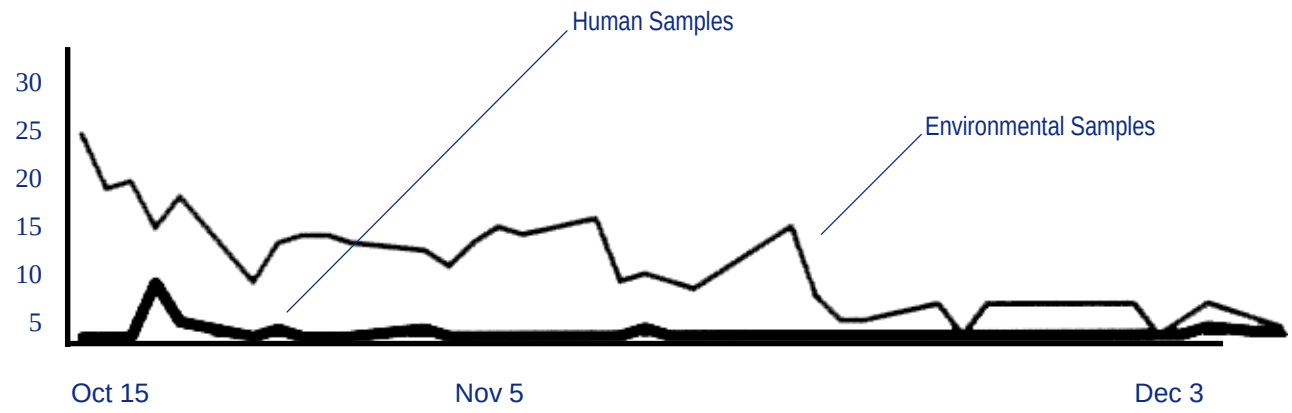
As with emerging infectious diseases, early detection and control of biological and chemical attacks depends on a strong and flexible public health system at the local, state and federal levels.

In addition, primary health care providers throughout the United States must be vigilant because they will probably be the first to observe and report unusual illness or injuries."

Footnotes

1 *Control of Communicable Diseases Manual 17th Edition*, American Public Health Association 2000, page 455

Table 2
Lab Specimens Received (Oct 15 - Dec 3, 2001)



New Hampshire Department of Health and Human Services
Office of Community and Public Health
Division of Epidemiology and Vital Statistics
6 Hazen Drive
Concord, NH 03301

Communicable Disease Reports

No Fax Policy

Public health disease surveillance systems collect essential epidemiological information on many diseases and conditions. At the Office of Public and Community Health, assurance of patient confidentiality is our highest priority. Therefore, we continuously evaluate our system in order to maintain an exceptional level of system confidentiality and security with all public health disease surveillance data.

This evaluation process serves to enhance our existing practices and procedures.

We do wish to inform health care providers statewide of the Division of Epidemiology and Vital Statistics 'no fax policy' for all HIV/AIDS surveillance data, both incoming and outgoing communication.

HIV/AIDS information includes: HIV antibody tests, HIV viral load tests, CD4 lymphocyte counts and *Pneumocystis carini* pneumonia reports.

Alternatively, we request that all HIV/AIDS information either be confidentially telephoned or mailed to:

STD/HIV Surveillance Coordinator
Bureau of Communicable Disease Surveillance
6 Hazen Drive
Concord, NH 03301
603-271-3932

Additionally, we restrict outgoing fax communication for all other communicable disease information containing patient identifiers.

All (non-HIV) communicable disease information may continue to be reported by fax and will be received by a secure fax machine with restricted access.

All confidential communications to out of state health departments are conducted by telephone or by mail.

The NH Department of Health and Human Services appreciates your ongoing support of public health disease surveillance.

If you have any questions or concerns about disease reporting please call 800- 852-3345, ext 0279 in New Hampshire or 603-271-0279.